The Effects of Explicitness of Customization and Level of Choice on Listener Attitudes, Behaviors and Cognitions Toward a Customized Music Radio Application

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ABSTRACT

JUSTIN LYNN WEBER: The Effects of Explicitness of Customization and Level of Choice on Listener Attitudes, Behaviors and Cognitions Toward a Customized Music Radio Application
(Under the direction of Sriram Kalyanaraman)

This thesis examines the effects of type of customization, specifically explicit and non-explicit customization, and level of choice on listener attitudes, behaviors, and cognitions. It attempts to make a modest contribution in this direction by examining decision-making and media effects when users encounter the interplay between the explicitness of the customization process and the number of choices offered in a customized radio application. It details the methods and results of an experiment (N=72) designed to examine the research questions. Results indicate that neither independent variable has significant effects user attitudes toward the application or willingness to pay for the application; however, there was a marginally significant main effect for level of choice on number of songs listened to. Theoretical and practical implications, limitations, and suggestions for future research are discussed.
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CHAPTER 1: INTRODUCTION

With the diffusion of the web and new media, consumers have nearly endless amounts of choice when they seek information and entertainment or services and products. Websites are able to offer seemingly limitless choice to attract visitors; however, an extensive amount choice can be overwhelming and demotivating (Iyengar & Lepper, 2000). To make their websites more appealing to users, website producers and designers have employed different strategies that are made possible thanks to the interactive nature of the web. One such commonly used strategy is customization. Customization is popular on the top websites in nearly every category. According to a recent Pew survey, 28 percent of internet users have a customized home page like MyYahoo or iGoogle tailored with their preferred news sources or topics (Purcell, Lainie, Mitchell, Rosenstiel, & Olmstead, 2010). Pandora.com, a personalized internet radio service, is the fastest growing radio platform in the world because it gained 20 million registered users from July 2009 to February 2011 (Schonfeld, 2011; Siegler, 2010). Not surprisingly, customization has attracted attention from media effects scholars.

Early research examined customized versus non-customized websites and found that participants exposed to greater levels of customization have more positive attitudes toward customized websites (e.g. Beier & Kalyanaraman, 2008; Kalyanaraman & Sundar, 2006; Tam & Ho, 2005). With several studies consistently showing the psychological superiority of customized websites, recent research has
started to examine specific moderators of customization, such as culture (Li & Kalyanaraman, 2009) and locus of control (Franke, Schreier, & Kaiser, 2010; Sundar & Marathe, 2010). One such moderator that appears to be ripe for investigation is the explicitness with which online users are informed of a website’s customization strategy. For instance, some websites provide information on how and/or why a particular page or website was personalized to the user’s preferences. One such example is Pandora.com, which allows listeners to see a short paragraph explaining why a song was selected for a particular user. Some other websites do not offer such information and leave unsaid the process of their customization strategy. Hulu.com serves customized advertisements during its videos, but does not offer explanation for its decisions. Presumably, by making explicit the rationale behind customized offerings, the interface might expect to invoke more positive user perceptions; however, such assumptions remain largely unverified. This issue would warrant empirical attention as it may offer further insights into the type of customization strategy that might be most effective.

While the marketing literature has examined the effects of explicit and non-explicit messages, the new media literature found that, conceptually, the degree of explicitness might be somewhat analogous to how transparent a system is. Previous studies have shown that online users prefer websites/computers that are more transparent and offer explicit feedback (Conn, 1995; Crystal & Kalyanaraman, 2004; Shneiderman, 1998; Nielsen, 1994).

Another consideration for web developers and designers is how much choice to offer their users. This issue has received much attention and while it was once presumed that more choices were better, there is a threshold for the positive effects
of choice (Iyengar, 2010a). Research has shown an offering an extensive amount of choice (i.e. more than 15 items at a time) can lead to less motivation to choose and less satisfaction in a choice (Iyengar & Lepper, 2000; Iyengar, Jiang, & Huberman, 2004); however, the effects of extensive choice have not been examined in a customized environment.

Given that website users face an abundance of choice and customization online, it is likely that they will be exposed to instances where they will have to sift through many customized choices. This thesis attempts to make a modest contribution in this direction by examining decision-making and media effects when users encounter the interplay between the explicitness of customization and the number of choices offered in a customized radio application. Specifically, it poses the research question: what is the relationship between the type of customization (explicit, not explicit) and level of choice (limited choice, extensive choice) in a customized music streaming application and users attitudes, cognitions, and intentions toward the application and its content?

In the following section, this thesis will review the literature pertaining to its two core concepts, type of customization and level of choice. It will also cover dual-process models of information processing to provide a theoretical framework. Based on the previous research and the theoretical framework, hypotheses will be proposed throughout the literature review. Then the thesis will explain the methodology used to test the proposed hypotheses. In the final two sections, it will present the results from the experiment and conclude by discussing implications, limitations, and suggestions for future research.
CHAPTER 2: LITERATURE REVIEW

To examine prior research related to the two independent variables and provide a theoretical framework for this study, the following section reviews relevant scholarly literature on type of customization, level of choice, and dual-process models of information processing.

**Type of Online Customization – Explicit versus Non-explicit**

Customization has gone by many names – matching, tailoring, and personalization to name a few – and has been studied in a variety of different contexts from marketing to health to social psychology (Kreuter, 2000; Murthi & Sarkar, 2003; Petty & Wegener, 1998; Pine, 1999). Online customization has been of great interest to scholars because of its growing prevalence, particularly in web-based environments (Kalyanaraman & Sundar, 2006). Today, internet users encounter customization in nearly every corner of the web. They can receive customized news and information on home pages like iGoogle and MyYahoo. Users can view customized product recommendations from shopping websites. Customized advertisements appear next to their email inboxes and during video streaming sessions. They can even listen to customized radio play lists.

The content and goals of customization are different across industries. One may customize an email message to encourage a greater response rate (Ansari & Mela, 2003) or someone may customize a portal for the convenience of having frequently sought information all in one place (Kalyanaraman & Sundar, 2006). One
may seek a customized radio service to be more effectively entertained. Whatever the context, customization is best defined as the idea of “matching messages to some aspect of the self” (Kalyanaraman & Sundar, 2006, p. 112; Petty, Barden, & Wheeler, 2002). Message creators are trying to reach an “audience of one” (Gilmore & Pine, 2000) by shaping messages according to people’s individual differences or preferences (See Kalyanaraman & Sundar, 2006 for a thorough explication of customization).

Increasing levels of customization have clearly and consistently been found to increase positive attitudes toward a customized website (Beier & Kalyanaraman, 2008; Kalyanaraman & Sundar, 2006). Customization can also enhance the persuasiveness of an interface (Tam & Ho, 2005; Li & Kalyanaraman, 2009; Oenema, Tan, & Burg, 2005) and participants’ memory of content and information (Beier & Kalyanaraman, 2008).

There are many different opposing types of customization – user versus computer-controlled (Sundar & Marathe, 2010; Franke, Schreier, & Kaiser, 2010), attribute versus alternative (Valenzuela, Dhar, & Zettelmeyer, 2009), situational versus dispositional customization (Kalyanaraman & Sundar, 2006) – but one that has not been discussed in the literature is explicit versus non-explicit customization. Here, we define the concept of explicit customization as the presence or absence of information about the customization process and how individual items were selected.

The Merriam-Webster dictionary defines the term “explicitness” as “careful thoroughness of detail” and “clearness of expression.” Explicitness “makes more obvious just what claims are being advanced” (O’Keefe, 1998, p. 61). In advertising,
explicit messages are defined as direct statements that leave the audience no room for individual interpretation (e.g. Company X is better than company Y). In contrast, implicit messages invite the audience to make their own conclusions (e.g. Compare company X to company Y yourself) (Kardes, Kim, & Lim, 1994; Sawyer & Howard, 1991).

In this study, we are not comparing the language of claims, but rather the presence or absence of a single message, specifically a message that provides the user with feedback about the customization process. As such, we are not investigating the message itself, but a formal feature of the system that makes obvious how the system works.

The human-computer interaction literature provides some insight into the effects of features that provide explicit information. “Clear” and “obvious” are traits of “transparency” which has been used to describe the goal of informative feedback, such as status bars, in computer-based environments (Crystal & Kalyanaraman, 2004). Informative feedback makes the processes of a computer or website more clear and obvious and thus could be described as explicit. A lack of informative feedback would then be described as non-explicit. This study examines explicit information about the customization process as a form of informative feedback as explicit customization helps to provide the user with a transparent view of the customization system.

Research has consistently show that the presence of informative feedback can engender more positive attitudes towards a computer system or website (Crystal & Kalyanaraman, 2004; Myers, 1985). It is suggested that a lack of informative feedback in a computerized environment will cause users to be more frustrated and
confused leading to more negative perceptions of the website or computer program (Nielsen, 1994; Ramsay, Barbesi, & Preece, 1998). The usability of a website or computer program can also be affected by how clearly the status of the system is presented (Conn, 1995; Shneiderman, 1998). Designers of customized websites and applications that include information about the customization process are assuming this feature will also engender more positive attitudes from their users; however, most of the previous literature on informative feedback was regarding features that provided information about system latency. The assumed effects of explicit customization have not been proven through research, but the literature on informative feedback does provide a foundation for empirical investigation.

Taking this previous research in account, I hypothesize that participants exposed to the explicit customization in my study will have more favorable attitudes towards the application:

**H1**: *Attitudes toward the MusicChoice application will be more positive when explicit information about the customization process is provided than when no information is provided.*

**Choice**

The common notion is that more choice is always better. We only need to look at the slogans of fast food business like Burger King (“Have it your way”) and Starbucks (“Happiness is in your choices”) to see this supposition in our culture (Iyengar, 2010b).

Academic research has provided a foundation for this assumption in the past. When given a choice, people are more intrinsically motivated and perform better on subsequent tasks (Deci, 1975, 1981; Deci & Ryan, 1985; Langer & Rodin, 1976;
Zuckerman, Porac, Lathin, Smith, & Deci, 1978). Even when the options are undesirable, people still prefer to have a choice knowing that the outcome will be unpleasant (Botti & Iyengar, 2004). Because any choice is good, the common logic assumed that more choices must be better than fewer choices. From the wide variety of brands in supermarkets to online stores touting endless inventories, it seems people can never get enough choice.

However, until 2000, there was little evidence that the positive effects of choice remained intact as the amount of choice increased. Early research like Zuckerman et al. (1978) usually only presented two to six choices. Iyengar and Lepper (2000) conducted one of the first studies to examine the psychological differences between limited and extensive choice. They describe limited choice as “psychologically manageable” (i.e. a person doesn’t have to simplify their choice process) and extensive choice as “psychologically excessive” (i.e. a person must simply their choice process and consider fewer items) (pg. 996).

Iyengar and Lepper (2000) performed three experiments and revealed that level of choice can have both psychological and behavioral effects. In one experiment, they set up displays of chocolate, one with six options and the other with 30 options. When participants approached the display, they were asked to estimate how satisfied they would be after making a choice and how good their choice would be (e.g. “Satisfactory”, “Among the best”). Participants selecting from 30 chocolates estimated their future satisfaction and choice quality to be significantly higher than participants selecting from six chocolates. After choosing, participants in the limited-choice condition were more satisfied with their selection than their counterparts in the extensive-choice condition. Participants in the extensive choice condition over
estimated how satisfied they would be and were subsequently less satisfied with their choices. Interestingly, when there was more choice, participants reported enjoying the choice process more, despite lower levels of satisfaction.

Participants’ behavior was also affected. In the first experiment, Iyengar and Lepper (2000) set up displays of jam samples in grocery stores, one with limited choice (6) and one with extensive choice (24). People were far more likely to approach the display with 24 choices than with six; however, the people that sampled jam from the limited choice display were far more likely to make a purchase than those that visited the extensive choice display. This was true in the chocolate study as well. To help them decide, participants in both conditions were allowed to sample as many jams as they liked. One might think participants in the extensive choice condition would sample more because they have a greater number of options to consider, but there was no significant difference in the number of jams sampled between the two conditions. All of the participants sampled one to two jams. This is in line with consumer research done by Hauser and Wernerfelt (1990) that suggests consumers process less overall information about their choices as the number of options increase.

The negative effects of extensive choice – lower motivation, regret, and dissatisfaction with selection – are labeled as the condition “choice overload.” Iyengar, et al. (2004) suggest, even in trivial situations where there is no right or wrong answers, participants exposed to extensive choice will feel more pressure to choose optimally and will be more unsure in their choices because they had more alternatives than they were able to consider.

Considering this previous research, the following hypotheses are proposed:
**H2:** Satisfaction with choice will be greater when selecting from a limited amount of songs than when selecting from an extensive amount of songs.

**H3:** Enjoyment of the choice process will be greater for participants selecting from an extensive amount of songs more than those selecting from a limited amount of songs.

**H4:** Willingness to pay for MusicChoice will be greater for participants selecting from a limited amount of songs than those selecting from an extensive amount of songs.

It is difficult to predict attitudes towards the application based upon the level of choice participants are exposed to as the literature contains no measures of attitudes toward the entity providing the choices. On one hand, participants in the extensive choice condition should be initially more attracted to the application and should enjoy the choice process more. On the other, participants in the limited choice condition should be more satisfied with their song selections and should be more willing to pay for the application. Each of these could suggest increases in positive attitudes toward the application. Extensive choice can also invoke negative consequences like regret, dissatisfaction, and demotivation, but it’s unknown whether these effects will affect participants’ attitudes toward the application. Because of this uncertainty, this dependent variable has been left at the level of a research question:

**RQ:** What is the relationship between level of choice and attitude toward the MusicChoice application?

**Dual-Process Frameworks and Interaction**

Dual-process theories can lend additional insight into the effects of level of
choice and type of customization by solidifying conceptual rationale and strengthening this study's theoretical foundation. These frameworks – some popular models are the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) and the Heuristic Systematic Model (HSM; Chaiken, Liberman, & Eagly, 1989) – posit persuasion as occurring through two distinct routes depending on how carefully a person considers a message. The first route, labeled the central or systematic route, consists of careful thinking and increased cognition. This requires the person to be both motivated to process the message and capable of processing it. If one or both is missing, the second route will be used to process the information. In this route, the person will be motivated to spend cognitive resources evaluating the message and its arguments. Attitude change is more likely to occur based on the message itself. The second route, called the peripheral or heuristic route, is marked by the use of cues or mental shortcuts. People prefer to use this route when possible because it is less effortful and more efficient. When a person isn't motivated to process a message and its arguments, their attitudes are more likely to be changed by peripheral cues, such as a celebrity spokesperson, rather than the actual arguments in the message. (Petty & Cacioppo, 1986; Chaiken, Liberman, & Eagly, 1989)

One of the many factors that can increase motivation to process a message is perceived relevance (Petty & Cacioppo, 1986 Petty, Priester, & Briñol, 2002). Customization increases users perceptions of relevance (Kalyanaraman & Sundar, 2006; Beier & Kalyanaraman, 2008) and causes them to generate more thoughts (Kreuter & Wray, 2003). Because every participant in this study will be exposed to custom music selections, they should be motivated to actively evaluate the application. For some, this motivation may be stifled by extensive choice, which can
be demotivating (Iyengar & Lepper, 2000). They should be less likely to actively evaluate the application thoroughly. For others selecting from a limited amount of choice, motivation should be unhindered. Those with higher motivation should be more likely to judge the application based on its core features such as the songs options. Participants with less motivation should be more likely to rely on peripheral cues (Petty & Cacioppo, 1986; Petty et al., 2002). Explicitness of customization could function as a cue. Less motivated participants would be more likely to take explicit information about the customization process into account in their evaluations of the and thus more likely to reflect our earlier hypothesis (H1) that explicit customization would lead to more positive attitudes toward the application.

With this in mind, I formally hypothesize an interaction between level of choice and type of customization on participant attitude toward the application:

**H5:** Type of customization will lead to more positive attitudes toward the application for participants exposed to an extensive amount of choice than for those exposed to a limited amount of choice.
CHAPTER 3: METHOD

Design Overview

A 2 (explicit, non-explicit customization) x 2 (limited, extensive choice) between-subjects factorial experiment (N=72) was designed to test the hypotheses. Participants were randomly assigned to one of the four treatment conditions. Each participant was exposed to a customized music radio application specially designed for this experiment. The application played a song and then allowed the user to select what track he or she could play next. The musical content for each participant was selected to reflect his or her individual preferences. The design and function of the application was the same across all conditions except for the experimental manipulations of level of choice and explicitness. Participants were exposed to an application that a) either had a short paragraph on the “Now Playing” page that explained how the application customized the song selection or a blank space where the paragraph would have been and b) either had five or 25 songs to select from.

Participants

A convenience sample of 108 students was recruited from introductory classes in the School of Journalism and Mass Communication and offered course credit for their participation. Out of the original 108, 100 completed the required pre-questionnaire and of those 100, 72 completed the lab session. The final sample of 72 was 79.2% female and 20.8% male with an average age of 20.6 years. Equal numbers of participants were assigned to the four treatment conditions.
Stimulus Material

A music-playing application was created specifically for use in this experiment. It was developed by the lead researcher and built by Mobile311, LLC, a small software startup in Cary, North Carolina. “MusicChoice” was used as the name of the fake service. The application featured a login screen, a “Now Playing” screen, and a song selection page. It also had basic, non-functional menu items (File, About, etc.) along the top of the application. Each page included a large MusicChoice logo at the top. The “Now Playing” page had a play/pause button, a volume control, song title, artist name, album title, album artwork, and a space for a short paragraph (i.e. the explicitness manipulation). The song selection page featured a large box that included a list of song titles and the performing artist with a “Choose Song” button underneath the box. After logging in, the application played one song before the selection screen appeared (See Appendix A for several examples of the stimulus material).

The application played MP3 files that were collected from various sources including the campus libraries and the researcher’s vast personal collection of digital music. Each file had artist, album, and song title information that the application used to display the correct information for each song. The application also displayed a 200 x 200 pixel jpeg of the album artwork with each song.

Participants were asked to listen to at least two songs, but told they could listen to more songs if they so desired. The two-song requirement ensured that each participant selected a song during his or her session. Song length varied, but efforts were made to keep the required listening time less than 10 minutes. No songs longer than six minutes were used in this study. When possible, a song under 4 minutes was
selected to play first. Also, the application recorded how long each participant stayed logged in and how many songs they listened to during their listening session.

The researcher informed the participants that MusicChoice was a beta version of a new custom online radio channel. They were told that, similar to traditional radio, a listener couldn’t skip or fast forward through songs, but that, unlike traditional radio, they would be given a choice of what to listen to next. During the study, participants accessed the application by logging into a remote computer via the Virtual Computer Lab at UNC. The rationale given for this was the researcher was not allowed to put the application online or install it locally because of copyright and licensing issues. In reality, this was done as a cost-saving measure.

Similar to previous customization studies (Kalyanaraman & Sundar, 2006; Beier & Kalyanaraman, 2008), a prequestionnaire was administered to assess each student’s individual preferences (See appendix B). Participants were asked to list at least six of each of the following: artists, albums, songs, and genres. It was made clear that favorites in each category did not have to have any relation to one another (i.e. a favorite song did not have to be by a favorite artist). They were also asked for basic demographic information such as age, gender, and major. They were also asked for their school username, which was later used as their unique login ID for MusicChoice.

Song selection was customized for each participant based on his or her pre-questionnaire. The researcher first identified a participant’s favorite songs that appeared on his or her favorite albums by his or her favorite artists (e.g. One participant indicated The Beatles as a favorite artist, Rubber Soul by The Beatles as a favorite album, and “Norwegian Wood” off of Rubber Soul as a favorite song, thus
the song was included). When there were no more songs that were exact matches in all three categories, songs that had matches in two categories were selected. If necessary, songs from the participant’s favorite artists were chosen to round out the selection available to the participant. Every participant had songs from at least five unique artists that they identified in the pre-questionnaire. On the song selection page of the application, the songs were displayed in alternating order so that the same artist did not appear twice in a row.

In an attempt to increase perceptions of personalization, every participant had to login to the application with a unique username. The username was his or her school username that they used for various campus services.

Participants in the limited choice condition had five songs to select from during their session. Those in the extensive choice condition had 25 songs to select from. These numbers were selected because Iyengar and Lepper (2000) successfully used similar numbers for a similar manipulation. Their research showed six choices to be psychologically manageable and 24 choices to invoke choice overload. The first song that played during a participant’s session did not appear among the choices on the selection page. The songs available on the selection page remained the same throughout the session.

For the explicit customization condition, participants saw a paragraph on the “Now Playing” page that read, “To select song options for you, MusicChoice analyzes your music preference pre-questionnaire and then matches your answers with songs in its database. MusicChoice attempts to find exact matches to your preferred artists, albums and songs. When it can’t, it selects the closest possible match.” This explanation appeared directly under the song, artist, and album information and
above the play/pause and volume controls. In the non-explicit condition, participants just saw a blank box where the paragraph normally appeared. The operationalization of explicitness was accomplished by examining differences in real customized music radio websites.

In total, 100 different configuration files were created. Upon login, the application matched each username with a configuration file that identified which selection of songs to display and whether or not to show the explicitness manipulation.

**Dependent Measures**

Attitude toward the application was the primary dependent measure and was measured with eleven 9-point Likert-type items – anchored between “very poorly” and “very well” – adapted from Kalyanaraman and Sundar (2006). Participants were asked to indicate how well each of the following adjectives described the application: appealing, useful, positive, good, favorable, attractive, exciting, pleasant, likable, high quality, and interesting (see appendix C).

**Customization Manipulation Check.** Several items were used to check the effectiveness of the type of customization manipulation. Participants were asked to rate their level of agreement with the following three statements on a 9-point Likert-type scale: “This app had songs from my favorite artists”, “The content featured in the app targeted me as a unique individual”, and “The app was ‘personalized’ according to my interests.”

**Level of Choice Manipulation Check.** To check the efficacy of the choice manipulation, participants were asked to rate their level of agreement with the following three statements on a 9-point Likert-type scale: “The app gave me a large
set of song options to choose from”, “The app gave me a small set of song options to choose from”, and “The song selection should have included more options.”

**Explicitness of Customization Manipulation Check.** The manipulation for explicitness of customization was checked by asking participants to rate their level of agreement with the following three statements on a 9-point Likert-type scale: “The app clearly explained why song choices were selected”, “It was clear to me how the app chose specific songs for me”, and “The app was explicit about how it chose specific songs for me.”

**Mediating Variables.** Both Kalyanaraman and Sundar (2006) and Beier and Kalyanaraman (2008) found perceived relevance, involvement, interactivity, and novelty to mediate the relationship between customization and attitudes. These mediators were measured to see what, if any, effects level of choice and explicitness of customization had on them. All of the mediators were measured by asking participants to rate their level of agreement with various statements adapted from Beier and Kalyanaraman (2008) on a 9-point Likert-type scale anchored between “strongly disagree” and “strongly agree.” Perceived relevance was measured with four statements including “the content of the app was important to me.” Four items measured perceived involvement including “I got emotionally involved in this app.” Perceived interactivity was measured with two items: “the content of the app made it interactive” and “the structure of the app made it interactive.” Four items measured perceived novelty including “This app was typical of most apps you see today” (For full list of questions for all mediators, see Appendix C).

**Memory Measures.** After the participants were finished listening to music, they were asked to recall as many song titles, album titles, and artist names as they could
remember from the songs they listened to as well as song titles and artist names from songs they didn’t listen to in a free-response section. The researcher coded the memory measure by counting the number of correct facts. Each unique song title, album name, and artist name recalled counted for one fact recalled. These numbers were used as continuous variables in the final analysis.

**Choice Satisfaction and Regret.** To measure the satisfaction each student felt with his or her own choices during the lab sessions, the participants were asked to rate their level of agreement with the following statements adapted from on a 9-point Likert-type scale: “I am satisfied with the song selections I made”, “I enjoyed listening to the songs I selected”, “I regret choosing the songs I did”, and “The songs I didn’t choose would have been more enjoyable.”

**Enjoyment of the Choice Process** A person’s level of enjoyment or frustration with choosing has been shown to vary with differing levels of choice. To measure enjoyment of the choice process, participants were asked to rate, on a 9-point Likert-type scale, their level of agreement with the following statements adapted from Iyengar and Lepper (2000): “I enjoyed choosing what to listen to next”, “I found it difficult to decide what to listen to next”, and “I was frustrated while deciding what to listen to next.”

**Behavioral Measures.** Several methods were used to measure both actual and intended behaviors. During the post-questionnaire, participants were asked to rate their agreement with the following statements on a 9-point Likert-type scaled anchored with “strongly disagree” and “strongly agree”: “I would be willing to pay for access to MusicChoice”, “I want to keep the account created for me today so I can use it when MusicChoice is publicly available”, and “I would recommend MusicChoice to
my friends.” Participants were asked to indicate how much they would be willing to pay in dollars per month for access to MusicChoice.

Some actual behaviors were recorded during the lab session. Participants were told they were required to listen to two songs, but could listen to more if they would like. The application created and saved text files logging the names and length of each song listen to and how long each participant was logged into MusicChoice. These two measures were used as continuous variables in the analyses; the latter was measured in total seconds spent listening.

**Control Measures.** Participants were to report whether or not they use a customized radio website regularly. They were also asked to report the amount of time they spend daily reading about music in print and online; listening to music on the web, on the radio, and on a personal device; and watching television related to music. Participants also filled out a 6-item perceived credibility scale where they where each item was presented as a statement and asked to indicate their level of agreement with each statement on a 9-point Likert-type scale (e.g. “I believe the MusicChoice app to be credible.” For more examples see Appendix C). Participants also reported demographic information such as gender and age.

**Procedure**

One hundred and eight participants signed up to participate in the research study through the school of journalism’s research pool. Students were required to participate in a certain number of studies to earn course credit. Information about participants’ musical tastes was obtained with an online prequestionnaire. Participants received a link to the questionnaire in an email two weeks prior to the scheduled lab sessions. They were told completion of the questionnaire was required
for participation in the lab session. Although they were not explicitly told that the questionnaire would be used to customize the stimulus materials, because all participates would be exposed to customized stimuli, it was less of a concern to conceal the association between the questionnaire and the stimulus material.

The experimental sessions were conducted in a computer lab in the School of Journalism and Mass Communication at the University of North Carolina at Chapel Hill. Fifteen sessions were conducted with four to nine participants in each session. Upon arrival, all participants were greeted and asked to sign in. They were then told to take a seat at computer station and read over and sign an informed consent form. Each computer station had a pair of lightweight, over-the-ear headphones. All participants used the exact same model of headphones. No participants sat immediately next to each other and there was at least one computer terminal between every participant. When every participant was seated, the researcher collected consent forms and began to describe the study.

Study participants were told that they were going to be evaluating a beta version of a new custom radio channel called MusicChoice. It was explained to them that this application might appear on the web or on a smart phone in the future, but today they would be accessing it through a virtual computer because of licensing and copyright issues. The researcher then guided the participants through the virtual computer login process step by step. Participants could see the researcher’s computer on big-screen televisions mounted on the walls about their own computer terminals.

When every participant had successfully logged in to the remote computer, the researcher explained exactly what the students would be doing during the
experiment. They were told their unique logins for the application were their student user names. Participants were asked to listen to at least two songs, but were told that they could listen to as many songs as they wanted within the one hour time limit. After they were finished listening, participants were instructed to fill out an online post-questionnaire. The link to the questionnaire was on the virtual computer desktop directly under the MusicChoice application icon. Students were also asked not to visit any websites, use any software, or use their phones during the experimental session.

When the experiment started, students put on their headphones, opened the MusicChoice application, and logged in with their student username. They listened to the song that played when they logged in and then chose a second song to listen to. After the completion of the second song, MusicChoice asked them if they wanted to “continue listening to [their] customized music choices.” If participants clicked “yes”, they were taken back to the song selection screen to choose another song. From this point on, MusicChoice asked them after every song if they wanted to keep listening. If participants clicked “no”, they were asked if they were sure. When the participant confirmed, they were logged out of the application. They then filled out the post-questionnaire online.

After participants had completed the post-questionnaire they were asked to leave the virtual computer window open at their station. They were given a debriefing form and allowed to leave the session. When all participants had left the session, the researcher saved the log files created by each instance of the MusicChoice app to a secure flash drive for future reference and began preparations for the next session.
Index Construction and Preparation for Data Analysis

Three items were meant to check the potency of the customization manipulation, two of them borrowed from Kalyanaraman and Sundar (2006) and Beier and Kalyanaraman (2008): “This app had songs from my favorite artists”, “The content featured in this app targeted me as a unique individual” and “The app was ‘personalized’ according to my interests.” These three items were combined to form a single index labeled “perceived customization.” This measure had a high degree of reliability (Cronbach’s $\alpha = .86$).

Taking cues from Iyengar and Lepper (2000), three items were meant to check the effectiveness of the choice manipulation: “The app gave me a large set of song options to choose from”, “The app gave me a small set of song options to choose from”, and “The song selection should have included more options.” The latter two items were reverse coded and combined with the first item to create an index labeled “perceived level of choice.” The reliability of this measure was satisfactory (Cronbach’s $\alpha = .87$).

The efficacy of the explicitness of customization manipulation was checked with three items: “The app clearly explained why song choices were selected”, “It was clear to me how the app chose specific song options for me”, and “The app was explicit about how it chose specific songs for me.” These items were combined into a single index labeled “perceived explicitness.” The index was reliable (Cronbach’s $\alpha = .87$).

Attitude toward the application was measure with 11 items, which had a high degree of internal consistency (Cronbach’s $\alpha = .95$). Six items measuring perceptions
of credibility also were internally consistent to a high degree (Cronbach’s $\alpha = .94$).

A reliability analysis was done on each of the indexes measuring the mediating variables of customization. The two items measuring interactivity were highly reliable (Pearson’s $r = .82$, $p < .01$), as were the four items measuring perceived involvement (Cronbach’s $\alpha = .91$), and the four items measuring perceived novelty (Cronbach’s $\alpha = .88$). The four items measuring perceived relevance showed a lower but still satisfactory degree of internal consistency (Cronbach’s $\alpha = .76$).

Two items measured choice satisfaction: “I am satisfied with the song selections I made” and “I enjoyed listening to the songs I selected.” When combined these items had a high degree of internal consistency (Pearson’s $r = .79$, $p < .01$)
CHAPTER 4: RESULTS

The data was analyzed using PASW 18.0 statistical software and employing analysis of variance (ANOVA). This study defines significant results as $p < .05$ and marginally significant results as $p < .1$.

**Manipulation Checks**

Several two-way between-subjects ANOVAs were conducted in order to check the effectiveness of the level of choice and type of customization manipulations. Results revealed statistically significant main effects for each of the two manipulations and no statistically significant interaction effects on the manipulation-check items.

First, a two-way ANOVA showed a statistically significant main effect for the level of choice manipulation [$F(1, 72)=32.46, p < .001$]. Specifically, the mean scores for participants in the extensive choice condition ($M=5.89, SD=1.92$) were significantly higher on the “perceived level of choice” index than those of participants in the limited choice condition ($M=3.44, SD=1.62$). The analysis also revealed that there was no statistically significant main effect for type of customization on perceived level of choice [$F(1, 72)=2.15, p = .42$] and no significant interaction effect of the two independent variables on perceived level of choice [$F(1, 72)=0.56, p = .89$].

Second, a two-way ANOVA indicated a statistically significant main effect for the type of customization manipulation [$F(1, 72)=31.35, p < .001$]. Restated, the
mean scores for participants in the explicit customization condition ($M=6.2$, $SD=2.19$) were higher on the “perceived explicitness” index than those of participants in the non-explicit customization condition ($M=3.56$, $SD=1.78$). The analysis also showed no statistically significant main effect for level of choice on perceived explicitness [$F(1, 72)=.88$, $p =.351$] and no interaction effect of the two independent variables on perceived explicitness [$F(1, 72)=.61$, $p =.44$].

Third, a two-way ANOVA was used to check participants’ perceptions of customization. There were neither main effects for the level of choice manipulation [$F(1, 72)=2.42$, $p =.12$] or type of customization manipulation [$F(1, 72)=0.01$, $p =.91$] nor an interaction of the two independent variables [$F(1, 72)=.22$, $p =.64$] on perceived customization. Specifically, participants in one condition did not perceive MusicChoice to be more customized than participants in any other treatment condition.

**Attitudes Toward the Application**

A two-way between subjects ANOVA was performed to investigate the main and interaction effects of the independent variables on participants’ attitudes toward the MusicChoice application. Perceived level of choice and explicitness were entered as fixed factors and the attitudes index was entered as the dependent variable. The analysis revealed no main effects for either independent variable {level of choice [$F(1, 72)=1.46$, $p =.23$]; explicitness [$F(1, 72)=.12$, $p =.74$]} and no interaction effect [$F(1, 72)=.47$, $p =.49$].

These results show no support for H1 or H5, which predicted a main effect for explicitness of customization and an interaction between explicitness of customization and level of choice on attitudes toward the application.
Choice Satisfaction and Enjoyment of the Choice Process

First, a two-way between subjects ANOVA was performed to investigate the main and interaction effects of the independent variables on participants’ satisfaction with their song choices. Perceived level of choice and explicitness were entered as fixed factors and “choice satisfaction” was entered as the dependent variable. The analysis revealed no main effects for either independent variable {level of choice \[F(1, 72)=.02, p =.90\]; explicitness \[F(1, 72)=.52, p =.47\]} and no interaction effect \[F(1, 72)=.36, p =.55\].

Second, a two-way between subjects ANOVA was conducted to examine the main and interaction effects of the independent variables on the participants’ enjoyment of the choice process. The independent variables were entered as fixed factors and responses to a single item (“I enjoyed choosing what to listen to next”) were entered as the dependent variable. The analysis revealed no main effects for either independent variable {level of choice \[F(1, 72)=1.13, p =.29\]; explicitness \[F(1, 72)=.004, p =.95\]} and no interaction effect \[F(1, 72)=4.78, p =.30\].

These results show no support for H2, which predicted that participants in the limited choice condition would be more satisfied with their choices than participants in the extensive choice condition, or H3, which predicted that participants in the extensive choice condition would report enjoying the choice process more than participants in the limited choice condition.

Cognitive Measures

Series of two-way between subjects ANOVAs were performed to investigate the main and interaction effects of the independent variables on several cognitive measures: memory of song facts from songs listened to, memory of song facts from
songs not selected, and total number of thoughts.

First, a two-way between subjects ANOVA was performed to investigate the main and interaction effects of the independent variables on memory of facts from songs they listened to. Perceived level of choice and explicitness were entered as fixed factors and the raw measurement of memory was entered as the dependent variable. The analysis revealed no main effects for either independent variable \{level of choice \([F(1, 72)=.01, p = .93]\); explicitness \([F(1, 72)=.73, p = .39]\)\} and no interaction effect \([F(1, 72)=2.02, p = .16]\).

Next, a two-way between subjects ANOVA was performed to investigate the main and interaction effects of the independent variables on memory of facts from songs they did not choose to listen to. Perceived level of choice and explicitness were entered as fixed factors and the raw number measurement of memory was entered as the dependent variable. The analysis revealed a main effect for level of choice \([F(1, 72)=9.55, p < .01]\). Specifically, participants in the extensive choice condition recalled more facts \((M=6.33, SD=3.13)\) about songs (song titles and artist names) they didn’t select than did participants in the limited choice condition \((M=4.5, SD=1.6)\). There was no main effect for explicitness \([F(1, 72)=.00, p =1.00]\) and no interaction effect \([F(1, 72)=.04, p =.85]\).

Finally, a two-way between subjects ANOVA was executed to examine the main and interaction effects of the level of choice and explicitness of customization on total number of thoughts listed in the thought listing exercise. The analysis showed that there were no main effects for either level of choice \([F(1, 72)=.58, p = .45]\) or explicitness of customization \([F(1, 72)=.11, p = .74]\); however, there was a marginally significant interaction effect between the variables \([F(1, 72)=2.86, p =.10]\).
Specifically, participants in the limited choice condition exposed to explicit customization on average had marginally more total thoughts \((M=6.83, SD=2.83)\) than did participants in the limited choice condition exposed to non-explicit customization \((M=5.94, SD=2.41)\). The opposite was true in the extensive choice condition. Participants exposed to extensive choice and non-explicit customization listed marginally more thoughts \((M=7.56, SD=3.47)\) than participants exposed to extensive choice and explicit customization \((M=6.22, SD=2.29)\).

**Behavioral Intent and Behavior Measures**

Several two-way between subjects ANOVAs were conducted to reveal the main and interaction effects of the independent variables on these behavioral intent and behavior measures: willingness to pay for MusicChoice, desire to keep account, likeliness of recommending MusicChoice to friends, number of dollars one would pay, and how many songs were listened to.

The analysis of willingness to pay revealed there were no main effects \{level of choice \([F(1, 72)=1.21, p = .28]\); explicitness \([F(1, 72)=.06, p = .81]\)\} and or interaction effects \([F(1, 72)=1.07, p = .46]\) of the independent variables. The same was true for desire to keep account \{level of choice \([F(1, 72)=.33, p = .57]\); explicitness \([F(1, 72)=.89, p = .75]\); interaction \([F(1, 72)=.89, p = .75]\)\}, likeliness of recommending to friends \([F(1, 72)=.97, p = .33]\); explicitness \([F(1, 72)=.13, p = .72]\); interaction \([F(1, 72)=.07, p = .80]\)\}, and number of dollars one would pay \{level of choice \([F(1, 72)=.30, p = .59]\); explicitness \([F(1, 72)=.19, p = .67]\); interaction \([F(1, 72)=.04, p = .84]\)\}.

This analysis shows no support for H4, which predicted that participants in the limited choice condition would be more willing to pay for MusicChoice than
participants in the extensive choice condition.

The two-way between subjects ANOVA with the independent variables entered as fixed factors and number of songs listened to entered as the dependent variable revealed a marginally significant main effect for level of choice \([F(1, 72)=1.39, p =.053]\). Restated, participants in the limited choice condition \((M=2.47, SD=.69)\) listened to marginally more songs than participants in the extensive choice condition \((M=2.19, SD=.47)\). There was no significant main effect for explicitness of customization \([F(1, 72)=.62, p =.53]\) and no significant interaction between the two variables \([F(1, 72)=.16, p =.69]\).

**Control Variables**

Further analysis was performed on the control variables to see if they had any significant effects on the data. These variables including gender, age, and music-related media use had no effect on the outcome of the above analysis.

**Summary of Findings**

This analysis found no support for any of the proposed hypotheses. Level of choice, explicitness of customization, and the interaction between the two had no effect on attitude toward the application, choice satisfaction, enjoyment of the choice process, and willingness to pay for MusicChoice.

There was a marginally significant finding for a main effect of level of choice on number of songs listened to. Also, the interaction of level of choice and explicitness of customization was found to be marginally significant on total number of thoughts listed during the thought listing exercise.
CHAPTER 5: DISCUSSION

To attract visitors, websites increasingly rely on growing levels of choice and varying customization strategies. Research has repeatedly shown the positive attitudinal effects of customization as well as the pitfalls of offering an extensive amount of choice; however, little research has examined level of choice in a customized context.

Prior studies revealed that while extensive choice is initially more attractive to participants than limited choice, extensive choice can be demotivating and can lead to less choice satisfaction than limited choice (Iyengar & Lepper, 2000; Iyengar et al., 2004). Customization has been shown to increase perceptions of relevance (Beier & Kalyanaraman, 2008; Kalyanaraman & Sundar, 2006) which, according to dual-process theories of persuasion, can in turn motivate someone to elaborate more on a message (Petty & Cacioppo, 1986 Petty et al., 2002).

This thesis sought to contribute to these existing literatures and build upon our knowledge of the effects of level of choice in consumer contexts such as buying groceries (Iyengar & Lepper, 2000) by examining the variable in the context of a customized music radio application. It analyzed the effects of level of choice on attitudes as well as its effects on behavior and cognition. In addition to this, it explored the interaction between level of choice and a second independent variable, explicitness of customization.

Some websites employing customization systems offer their users explicit
information about the customization process, presumably to increase users’ positive perceptions of the site. This presumed effect had not been empirically examined before. Previous research on explicit messages in the marketing literature is inconclusive about its effects on attitudes and behaviors; however, in computer-based environments, explicitness can be synonymous with informative feedback. Usability research has consistently shown that users prefer systems that provide explicit feedback, like status bars, about computer processes (Crystal & Kalyanaraman, 2004). This thesis sought to examine the affective, cognitive, and behavioral effects of explicit and non-explicit customization. Users will most likely encounter different types of customization and differing levels of choice in concert thus a factorial design was proposed to explore the interaction between the two variables.

A few findings from this thesis deserve discussion as they may offer some insight into the psychological effects of level of choice and explicitness of customization. Before elaborating on these further, the effectiveness of the experimental manipulations should be mentioned. The manipulation checks revealed statistical significance for level of choice, exhibiting that participants perceived 25 songs as a large amount of choice and five songs as a small amount of choice. While on the surface this seems obvious, this was important because it was unknown how many songs would be perceived as a large amount of choice in an age where one can carry an entire music library on a digital music player.

The manipulation check for explicitness was also statistically significant. This finding provides evidence that one paragraph can indeed influence user perceptions of explicitness. The effectiveness of the manipulation is important considering that
explicitness was not found influence attitudes or behavior. While participants recognized the presence of explicit information, they did not use it in their evaluations of the application. It is also important because it strengthens the conceptual connection between informative feedback and explicitness.

**Theoretical Implications**

Based on previous usability literature, it was hypothesized that the presence of explicit information about the customization process would lead to more positive evaluations of the application. This hypothesis was not supported. A research question was posed pertaining to the relationship between level of choice and participants’ perceptions of MusicChoice and there was no significant relationship found. However, the relationship between level of choice and attitude toward the application was trending toward significance and more data should be collected. As the results stand right now, they suggest that the level of choice present was not used in participants’ evaluations of MusicChoice. The hypotheses that level of choice would affect participants’ choice satisfaction, enjoyment of the choice process, and willingness to pay for MusisChoice were not supported, although collecting more data might reveal them to be significant.

The ELM informs one possible explanation for these results. Participants were highly motivated to actively process MusicChoice because it was customized to them. In the context of the ELM, explicitness of customization and level of choice could be acting as cues, which would not be considered by a participant evaluating MusicChoice via the central route (Petty & Cacioppo, 1986; Petty et al., 2002). Customization is such a psychologically powerful variable it seems to subsume
everything else around it.

There were a few marginally significant findings. Participants in the limited choice condition listened to marginally more songs than participants in the extensive choice condition. Keeping in mind previous literature on level of choice, this might be because participants exposed to an extensive amount of choice felt slightly overwhelmed and wanted to end their listening session sooner rather than later. Participants exposed to fewer options may have been more motivated and thus elaborated more on their options and identify another song they wanted to listen to in advance. Further analysis is needed to find the mechanism through which limited choice motivated participants to listen more.

While only marginally significant, the interaction of level of choice and explicitness on number of thoughts listed is interesting. When the customization was non-explicit, level of choice had a greater effect on the number of thoughts listed. Participants in the extensive choice condition listed marginally more thoughts than those in the limited choice condition when the customization was not explicit. When the customization was explicit, the number of thoughts listed by participants in the limited choice condition was not significantly different from participants in the extensive choice condition. This suggests a difference in cognition. It provides evidence that explicitness may level of the playing field, cognitively, for users exposed to different levels of choice. Further investigation will have to be done to fully understand the implications of this finding.

The effects of level of choice on memory are easily explained. There were more items for participants to remember in the extensive choice condition and thus a better opportunity to get a high raw score. This finding does not seem to add much to
Practical Implications

In addition to the theoretical implications, developers of customization systems can find several practical implications. Tantamount is the suggestion that a customized music website or application may be able to offer an extensive level of choice or a lack of explicit information about the customization process and still be perceived positively by their users. Because customization leads to increased motivation – and thus more elaboration – through increased perceptions of relevance, users may overlook formal features of websites and applications when they form their attitudes. This knowledge suggests that designers and developers of customized music services should prioritize providing effective customization over developing surrounding features.

Secondly, these findings suggest that users may not be willing to pay more for websites or applications with limited amount of choice or explicit information. Previous studies have shown limited levels of choice leading to more purchases of food items (Iyengar & Lepper, 2000). The unique economic climate surrounding the music industry, in which music is often free, may have affected users’ willingness to pay as well. Customized music providers may have to look for methods beyond varying formal features of their websites to increase users’ willingness to pay.

Limitations

This thesis’ findings have limited external validity. It is limited to custom music applications and it may not be possible to generalize these findings to other types of websites or applications. Specifically, using customized music services has few consequences compared to services that provide customized health or financial
information. This lack of consequence may affect a user’s decision-making process and attitude formation.

The experimental setting may have also limited the study. Students completed the experiment in groups. They were allowed to listen to music for as long as an hour, but many reported in the thought listing exercise that they felt pressure to finish quicker as more students left the lab. If experiment sessions were conducted on an individual basis, students may have listened longer. Also, the researchers had participants listen to two songs to force participants to make at least one choice. This requirement may have been unnecessary. Without it the researchers would’ve been able to evaluate participants’ motivation to even make a choice in the first place.

This sample is unique and results should not be generalized to other samples or populations. Participants were undergraduate students in their late teens and early 20’s. Results may be different in older samples.

Finally, while this stimulus material was more complex than customized stimulus materials used in previous studies, it does not approach the level of polish and functionality of real customized music websites and applications. A majority of this sample was familiar with customized music websites. This may have led to more critical evaluations of the stimulus. Also, samples less familiar with this type of website may react to the manipulations differently.

**Suggestions for Future Research**

Based on the findings and limitations of this thesis, there are some considerations for future research.

First, explicitness of customization may have different effects on websites where the content being customized is less important to the identity of the user. For
example, music may be more likely to be a key part of a person’s concept of self than toothpaste. People may not need explicit information when evaluating something central to their identity, but it may be helpful for something they know little about. Therefore, explicit information about how and why a selection of toothpaste was customized may have different effects.

Not only could the product be varied in conjunction with explicit customization, the source of the customization could be varied as well in future research. In this study, the source of the customization was the computer. In a situation where a human source (friends, experts, etc.) customizes content, an explanation of how items were selected may be more valuable to the user. This type of research would be valuable as search engines and news sites begin to use information from social networks to tailor results and content.

Also, future studies could examine the language used in messages providing information about the customization process. The present study only examined the presence or absence of a message, not the content of the message. The bulk of the marketing literature is inconclusive on the effectiveness of explicit versus implicit messages. O'Keefe (1998) identified some studies supporting the persuasiveness of explicit messages (e.g. Berger, 1988; Bradley, 1981; Gill, Grossbart, & Lacznaiak, 1988; Gutteling, 1993; Knouse, 1983; Munch, Boller, & Swasy, 1993; Reinard, 1984, etc.), but other’s were not supportive (e.g. Fisher, 1972; Harte, 1972, 1976; Hayes, 1966, 1971; Luchok & McCroskey, 1978, etc.). More recent research by Yan, Hyllegard, and Blaesi (2011) shows some clearer results with participants reporting more positive attitudes toward a pair of eco-friendly jeans sold with an explicit message about the products environmentally friendly qualities.
Also, future research should examine level of choice and type of customization in different contexts, particularly in the realm of health. The Obama administration is pushing to digitize all patient health records by 2014 and this opens the door for many customized online health information services. Examination of variables related to customization in this context could be fruitful.

With customization rapidly moving into new industries like health, new populations will be exposed to it, particularly older populations. Senior citizens, potentially with fewer cognitive resources available to assess customized sites, may prefer explicit information about the customization process. Level of choice may also cause greater differences in attitudes, cognition, and behavior. Future research could seek to identify how websites should customize according to cognitive capacity.

To conclude, it seems that customization is an overwhelmingly powerful variable. This further proves the need for more research into all aspects of customization and the different ways with which it is employed. While none of the hypotheses proposed in this thesis were confirmed, some of the potential main effects of level of choice could turn out to be significant with more data and further analysis. The present study expanded previous research on choice and usability by suggesting that the effects of level of choice and explicit informative feedback may not hold in a customized environment. In the future, scholars should continue to explore customization in different contexts with different populations to determine the limits of its power.
APPENDIX A: STIMULUS MATERIALS

CONDITION 1: LIMITED CHOICE x NON-EXPLICIT LOGIN PAGE
CONDITION 1: LIMITED CHOICE x NON-EXPLICIT
NOW PLAYING PAGE

Album: Giant Steps
Artist: John Coltrane
Track: Giant Steps (Alternate Version 2)
CONDITION 1: LIMITED CHOICE x NON-EXPLICIT
SONG SELECTION PAGE

Please select what song you would like to listen to next...

J做成 by Diggie Planas
What Do You Want Me To Say (Live) by Dismemberment Plan
Blue in Green by Miles Davis
Summertime Clothes by Animal Collective
Your Beat Kills Book Like Death by Jens Lekman
CONDITION 1: LIMITED CHOICE x NON-EXPLICIT
LISTEN MORE PROMPT
CONDITION 2: EXTENSIVE CHOICE x NON-EXPlicit
LOGIN PAGE

Welcome to MUSICchoice

Please enter your user name:

Login
CONDITION 2: EXTENSIVE CHOICE x NON-EXPLICIT
NOW PLAYING PAGE

MUSIC Choice
now playing...

Album: Giant Steps
Artist: John Coltrane
Track: Giant Steps (Alternate Version 2)

Volume

Running in locked trial mode
CONDITION 2: EXTENSIVE CHOICE x NON-EXPLICIT
SONG SELECTION PAGE

Please select which song you would like to listen to next...

- Immigrant Song by Led Zeppelin
- All Along The Watchtower by Bob Dylan
- We're Going to Take You Home by The Rolling Stones
- Just Can't Get Enough by Black Eyed Peas
- Closer by Jay-Z
- We Don't Care by Kanye West
- Start Me Up by The Rolling Stones
- Black Dog by Led Zeppelin
- All the Love in the World by Bob Dylan
- Disturb Your Shoulder by Jay-Z
- All Falls Down by Kanye West
- Brown Sugar by The Rolling Stones
- Over The Hills And Far Away by Led Zeppelin
- It Ain't Me Babe by Bob Dylan
- 99 Problems by Jay-Z
- Spaceship by Kanye West
- Miss You by The Rolling Stones
- Going To California by Led Zeppelin
- Knockin' On Heaven's Door by Bob Dylan
- Hurry My Tortuga by Jay-Z

Choose Song
CONDITION 2: EXTENSIVE CHOICE x NON-EXPLICIT
LISTEN MORE PROMPT
CONDITION 3: LIMITED CHOICE x EXPLICIT SONG SELECTION PAGE

Please select what song you would like to list to next...

Genesis by Digable Planets
What Do You Want Me To Say (Live) by Dismemberment Plan
Duke in Green by Miles Davis
Summertime Clothes by Animal Collective
Your Boat Kids Book Like Death by Jens Lekman

Choose Song
CONDITION 3: LIMITED CHOICE × EXPLICIT
LISTEN MORE PROMPT

MUSICchoice

now playing

Continue?
Would you like to listen to more of your customized music choices?
Yes  No

Track:

To select song options for you, MusicChoice analyzes your music preference profile questionnaire and then
matches your answers with songs in its database.
MusicChoice attempts to find exact matches to your
preferred artists, albums, and songs. When it can’t, it
selects the closest possible match.

Volume
CONDITION 4: EXTENSIVE CHOICE x EXPLICIT LOGIN PAGE

Welcome to MUSIC choice

Please enter your user name:

Login
CONDITION 4: EXTENSIVE CHOICE x EXPLICIT
NOW PLAYING PAGE

Album: Forty Licks [Disc 2]
Artist: The Rolling Stones
Track: Beast Of Burden

To select song options for you, Music Choice analyzes your music preference questionnaire and then matches your answers with songs in its database. Music Choice attempts to find exact matches to your preferred artists, albums and songs. When it can't, it selects the closest possible match.
CONDITION 4: EXTENSIVE CHOICE x EXPLICIT SONG SELECTION PAGE
CONDITION 4: EXTENSIVE CHOICE x EXPLICIT
LISTEN MORE PROMPT

Would you like to listen to more of your customized music choices?

Yes  No

Track:

To select song options for you, Music Choice analyzes your music preference questionnaire and then
matches your answers with songs in its database. Music Choice attempts to find exact matches to your
preferred artists, albums, and songs. When it can't, it
selects the closest possible match.

Volume

Running in locked trial mode
Thank you for taking the time to participate in this study.

The following questionnaire asks questions about your musical preferences and also asks for some basic information about you. It should take you about 15 minutes to complete.

Your answers will be confidential and will not be shared with anyone outside of the research team. If you choose to, you may stop participating at any time with no punishment.

Please answer all of the questions, starting on the next page, to the best of your ability.
Please list your favorite **bands, artists, or musical groups** in the space below. **List at least 6**, but write down more if you would like.

Please list some of your **favorite albums** in the space below. **List at least 6**, but feel free to list more if you would like.

The albums you list can be by the artists you listed above or they can be by different artists.

Please list some of your **favorite songs** in the space below. **List at least 6**, but list more if you would like.

The songs you list can be by the artists you listed above or they can be by different artists.

Please list your **favorite musical genres** (e.g. Country, Hip-Hop). You can list as many or as few as you would like.
What is your ONYEN? This information will be kept confidential. We are collecting this information simply for the purposes of matching you with the correct experiment materials in the lab session.

What is your age?

What is your standing at UNC?
- Freshman
- Sophomore
- Junior
- Senior
- Graduate
- Other

What is your major?

What is your gender?
We thank you for your time spent taking this survey. Your response has been recorded.
Please tell us about your perceptions of MusicChoice
This questionnaire contains several questions asking for your opinions about the MusicChoice app.
Thank you for sharing your opinions with us.
POST-QUESTIONNAIRE – THOUGHT LISTING

We are interested in everything that went through your mind as you used MusicChoice.

For approximately three minutes, please list these thoughts (positive thoughts, negative thoughts, and neutral thoughts) regarding MusicChoice (and information on the application) you viewed. You may use single words or full sentences. Ignore spelling, grammar and punctuation.

We have deliberately included more space than we think people will need to ensure that everyone would have plenty of room.

Please be completely honest. Your responses will be anonymous.

Simply type the first thought you had in the first box, the second thought in the second box, etc.

Please put only one idea or thought in a box.

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Please answer the following questions on a rating scale of 1 (not at all) to 9 (extremely).

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<th>Question</th>
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<td>How confident are you in your thoughts?</td>
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POST-QUESTIONNAIRE – MEMORY MEASUREMENT

This section tests your memory of the music that was presented to you on the app. Please try to write as much as you can remember based on your experience.

List ALL of the names you can remember of the songs, artists, and albums you listened to during the session.

List ALL of the names you can remember of songs and artists from the play list that you didn’t listen to.
POST-QUESTIONNAIRE – ATTITUDE MEASURES

Based on your experience with MusicChoice during this session, please provide an overall evaluation of the MusicChoice app using the scales below. On a scale of 1 (not at all) to 9 (extremely), please select the number that indicates how well each term describes the MusicChoice app you just used.

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<td>High Quality</td>
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POST-QUESTIONNAIRE – CREDIBILITY MEASURES

This section asks you to rate your perceptions on the credibility of the MusicChoice. Please rate your level of agreement with the following statements on a scale from 1 (strongly disagree) to 9 (strongly agree).

<table>
<thead>
<tr>
<th>I would trust information on the MusicChoice app.</th>
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</thead>
<tbody>
<tr>
<td>I believe the MusicChoice app to be credible.</td>
</tr>
<tr>
<td>I found the content featured in the MusicChoice app to be of high quality.</td>
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<tr>
<td>I found the content featured in the MusicChoice app to be accurate.</td>
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<tr>
<td>I found the content featured in the MusicChoice app to be reliable.</td>
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<tr>
<td>I found the content featured in the MusicChoice app to be believable.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
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Survey Completion: 2%
Based on your experience with MusicChoice during this session, please rate your perceptions of the MusicChoice app. Circle the number that represents your level of agreement with the following statements on a scale from 1 (strongly disagree) to 9 (strongly agree).

<table>
<thead>
<tr>
<th>Statement</th>
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<tr>
<td>I was familiar with the content featured in this app.</td>
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<td>I was familiar with the MusicChoice app.</td>
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<td>This app had songs from my favorite artist.</td>
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<td>I paid a great deal of attention when going through the app.</td>
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<td>The content featured in the app targeted me as a unique individual.</td>
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<td>This app was &quot;personalized&quot; according to my interests.</td>
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<td>The content of the app was important to me.</td>
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<td>The content featured in the app was meaningful to me.</td>
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<td>The app didn't have anything to do with me or my life.</td>
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<td>The app did not show me anything that made me want to use it.</td>
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<td>The app gave me a large set of song options to choose from.</td>
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<td>This app was typical of most apps you see today.</td>
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<td>You see apps like this all the time; it's the same old thing.</td>
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<td>The content of the app made it interactive.</td>
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<td>The structure of the app made it interactive.</td>
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<td>I've seen a lot of apps like this before.</td>
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</table>
Based on your experience with MusicChoice during this session, please rate your perceptions of the MusicChoice app. Circle the number that represents your level of agreement with the following statements on a scale from 1 (strongly disagree) to 9 (strongly agree).

<table>
<thead>
<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>The app gave me a small set of song options to choose from.</td>
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<td>This app was just like other apps.</td>
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<td>I got emotionally involved in this app.</td>
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<td>I experienced emotion while going through this app.</td>
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<td>I found myself responding strongly to this app.</td>
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<td>I got involved with the content in this app.</td>
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<td>The app clearly explained why songs choices were selected.</td>
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<td>I am satisfied with the song selections I made.</td>
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<td>I enjoyed listening to the songs I selected.</td>
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<td>I regret choosing to listen to the songs I did.</td>
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<td>The songs I didn’t choose to listen to would have been more enjoyable.</td>
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<td>The song selection should have included more options.</td>
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<td>I enjoyed choosing which song to listen to next.</td>
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<td>I found it difficult to decide what song to listen to next.</td>
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<td>I was frustrated while deciding what song to listen to next.</td>
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<td>It was clear to me how the app chose specific song options for me.</td>
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<td>The app was explicit about how it chose specific songs for me.</td>
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Survey Completion: 0% – 100%
POST-QUESTIONNAIRE – CONTROL MEASURES

Your Onyen

Your Age (Please type only a number. No words)

Your Gender

Your Major

How many hours per day, if any, do you spend browsing the web? (Please type only a number. No words.)

How many hours per day, if any, do you spend _____? (Please type only a number. No words.)

reading about music on the web

reading about music in print
newspapers or magazines

watching music-related television

listening to music on the radio

listening to music on a personal
music player (iPod, etc.)

listening to music on the web

What is your favorite website to listen to music on the web?
POST-QUESTIONNAIRE – CONTROL AND BEHAVIORAL INTERNET MEASURES

Do you use customized music websites (e.g. Pandora Radio, Musicover, Grooveshark)?

- Yes
- No

If you answered “no” to the previous question, rate how likely are you to register for a customized music site in the future on a scale from 1 (not very likely) to 9 (very likely).

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Select one

If you use customized music radio websites regularly, which ones do you use?

Choose the number that represents your level of agreement with the following statements on a scale from 1 (strongly disagree) to 9 (strongly agree).

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</table>

I would be willing to pay for access to MusicChoice

I want to keep the account created for me today so I can use it when MusicChoice is publicly available.

I would recommend MusicChoice to my friends.

Once MusicChoice is publicly available, please indicate how much per month, in dollars, you would be willing to pay to access the app.

Survey Progress

0% 100%
What are some general things you should know about research studies?
You are being asked to take part in a research study. To join the study is voluntary.
You may refuse to join, or you may withdraw your consent to be in the study, for any reason,
without penalty.

Research studies are designed to obtain new knowledge. This new information may help
people in the future. You may not receive any direct benefit from being in the research
study. There also may be risks to being in research studies.

Details about this study are discussed below. It is important that you understand this
information so that you can make an informed choice about being in this research study.
You will be given a copy of this consent form. You should ask the researcher named above,
or staff members who may assist them, any questions you have about this study at any time.

What is the purpose of this study?
The purpose of this research study is to understand how people evaluate music radio
websites.
For the purposes of this study you will be reviewing a music radio website. You will be
asked to view a website and then you will be asked to answer a set of questions related to the website that you view.

**How many people will take part in this study?**
If you decide to be in this study, you will be one of approximately 80 people in this research study.

**How long will your part in this study last?**
The study will take no more than 1 hour of your time. Therefore, you will receive 1 hour of course credit toward your Journalism research requirement. There will be no follow-ups for this study. Remember that there are other ways to fulfill your research requirement in addition to study participation.

**What will happen if you take part in the study?**
First, you will view and use a music radio website. Then you will be asked to fill out a questionnaire to report your opinions related to the topic of the website.

You are one of about 80 people we are asking to participate in this study. We are interested in your response to the website. Please be assured that there are no "right" or "wrong" answers. Also, please be assured that you are free to not answer any questions or to end the study at any time. You will receive research credit for your participation in this study.

If you have any questions or concerns about this study, please contact Justin Weber at (719) 210-6281 or weberj@email.unc.edu

**What are the possible benefits from being in this study?**
Research is designed to benefit society by gaining new knowledge. There are no direct benefits to participants, but you will learn more about research in general and this topic in particular.

**What are the possible risks or discomforts involved from being in this study?**
There are no known risks associated with this research. However, discussing opinions may be uncomfortable for some people. You are free to not answer any question or to end the study at any time.

**How will your privacy be protected?**
We will make every effort to protect your privacy. Participants will not be identified in any report or publication about this study. Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, UNC-Chapel Hill will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies for purposes such as quality control or safety.

**Will you receive anything for being in this study?**
You will receive 1 hour of research credit for participating in this study. Should you decide to drop out of this study for any reason, the credit you receive will be prorated. You will receive a quarter of a credit (.25) for every 15 minutes they participate (i.e. .25 for 15 minutes, .5 for 30 minutes, etc.). Equivalent credit options will be provided by your instructor should you wish not to participate.

**Will it cost you anything to be in this study?**
There will be no costs for being in this study.

**What if you have questions about this study?**
You have the right to ask, and have answered, any questions you may have about this research. If you have questions, or concerns, you should contact the researcher listed on the first page of this form.

**What if you have questions about your rights as a research participant?**
All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject you may contact, anonymously if you wish, the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

---

**Title of Study:** Evaluating Church Websites  
**Principal Investigator:** Christina Malik

**Participant’s Agreement:**
I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

_________________________________________ _________________  
Signature of Research Participant Date

_________________________________________  
Printed Name of Research Participant

_________________________________________ _________________  
Signature of Person Obtaining Consent Date

_________________________________________  
Printed Name of Person Obtaining Consent
Thank you for participating in this study. We’d like to share some information about the research design and questions we were seeking to answer.

- Research begins with a compelling question. In this study, we want to learn:
  - What is the relationship between explicit or non-explicit customization and level of choice?

- Next, a research design is created to tackle the research question.
  - First, we asked you for your music preferences on the pre-questionnaire.
  - Next, we built a customized music radio website based on your answers.
  - Next, we asked you questions about your opinions of the website and the music. It is important that you know that this radio station and this website were created solely for the purposes of this study.
  - Later, we’ll review your responses along with the other persons in this study. We’ll try to determine what, if any, effect explicit or implicit customization and level of choice had on your attitudes towards the website.

In order to make sure everyone’s responses are not biased by outside influences, please do not speak with anyone about the study for at least two months. It is very important that others who may participate do not know the purpose of this study beforehand.

If you would like to learn more about this topic, you may be interested in reading the following:


If you have any questions or concerns about this study, please contact Justin Weber, at weberj@email.unc.edu or Dr. Sri Kalyanaraman at sri@unc.edu.

Thank you for your participation! We appreciate your help!
APPENDIX F: LAB PROCTOR SCRIPT

<Greet participants and ask them to sign in>

Hello. To make sure you’re all in the right place, this is room _____ and you are participating in a study titled “Audience Attitudes and Choice in Customized Environments.”

Thank you for taking the time to participate and share your opinions with us.

First, we need you to sign an informed consent form, which explains your rights as a research participant. The consent form should be on your keyboard. Please take a moment to read and sign. <pause – let them read and sign>

Any questions? <answer questions if necessary> Let's move on.

Today, you will be using a beta version of new custom online radio station, MusicChoice. It is similar to other radio stations in that you can’t skip or fast forward songs, but it’s different because after a song ends gives you a choice of what to listen to next.

Future versions of this app could be accessed through a web browser or on a smart phone, but for this test, you will be accessing MusicChoice as a desktop app remotely through the UNC Virtual Computer Lab because of some copyright and licensing issues with the school regarding public performances.

Has anybody used the VCL before? <Answers will most likely be no> Don’t worry if you haven’t, it’s a fairly simply process, but one that is better shown than explained writing. Wake your computer screens up and follow along with me on the TV monitors.

<Take them through VCL login process. When everyone is logged in, proceed>

You should have a window open on you computer screen that shows a Windows desktop in it. You should see a few icons on the screen including the music choice app. This is your remote desktop connection. Do not close this window.

Now that this is set up, here is what you will be doing during the experiment:

When the experiment begins, you will put on your headphones and double click on the MusicChoice icon to open the app.

MusicChoice will ask you for a username to login. Your username is your ONYEN, all lowercase. Once you login, a song will begin to play. There may be a slight delay and the audio may occasionally skip. This is normal with the VCL, but should your audio completely cut out or become unlistenable, please let me know immediately.

When the song finishes you will be given a choice of what song to listen to next. Select a song and click “Choose Song” at the bottom of the page to listen to it. When the second song
finishes you will be asked if you want to listen to more music or not. If yes, you will choose another song and listen again. When the song is finished you will again be asked if you want to keep listening. This process will repeat until you choose “no”. If you choose no, you will be logged out of MusicChoice.

When you’re finished listening to music, click on the link to the post-questionnaire on the desktop. This will take you to an online questionnaire.

Please fill out all the questions to the best of your ability. When finished, notify me, I will give you a debriefing form and then you can leave.

If at any time during this test, you have questions about the app or the questionnaire, please raise your hand and I will come help you.

Are there any questions about what is happening here today and what is required of you? If not, let’s begin.

Put on your headphones, open the app and log in.
REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


